INSIDE: WHAT'S THE BOWHUNTING RUCKUS ABOUT?

Montana Outdoors

September–October 2008

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MOUNTAIN GOATS

Populations on the precipice?

DUCKOLOGY 101

UPLAND BIRDS GALORE

MAPPING WHAT MATTERS MOST

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A GOOD FIT Though not native, Hungarian partridge quickly adapted to Montana's harsh landscapes after they were imported from Europe in the early 1900s. Learn more about these and other upland birds on page 8. Photo by Donald M. Jones.

FRONT COVER Are mountain goats in trouble? See story on page 22. Photo by Tony Bynum.

Another shanks chef

Your article on cooking game ("Venison Alchemy," September–October 2007) was the best I've read in years. Having always done my own butchering, I found the "tough cut" diagram exceptionally helpful. And I wholeheartedly concur with the approach on cooking a venison neck pot roast. Regarding venison shanks, I offer the following recipe I created some years ago to make use of these often-discarded parts.

Paul Scheffer
Billings

Scheffer's Braised Shanks

Proportions are sized for four deer or antelope shanks or two elk shanks. The shanks do not need to be deboned; bone-in is better, but you may need to saw them up to fit in your biggest pot. The tomatillos and cumin are key ingredients.

- 2 to 4 shanks, depending on the species
- 1½ C. dry beans (any mixture of pinto, kidney, anasazi, black, etc.)
- 1 medium onion, diced
- 2 cloves garlic, diced
- 2 small chili peppers, crushed
- 6 small tomatillos, quartered
- ½ t. pepper
- 2 t. cumin
- 1 C. split peas
- ½ C. lentils

1. Cover beans with water and soak overnight.
2. Cover venison shanks with water and about 2 t. salt; simmer 4 to 8 hours until meat falls off the bone and the tough connective tissue melts into a velvety goo. Pour off and reserve liquid. Shred the meat with a fork.*
3. Cook beans, onion, garlic, and spices 2 to 4 hours or until beans are just under-cooked.
4. Add meat, peas, and lentils and simmer 30 to 60 minutes until lentils dissolve. Add reserved meat broth if additional liquid is needed.

* *At this point, if you have excess meat, mix it with packaged sloppy joe mix to make a super barbeque sandwich.*

W

More advice on packing

That was a great story with great advice on the problem of getting game out of remote places ("Moving Meat," November–December 2007). I have packed elk out of many spots where I should not have gone. Now that I am older, I have wised up and pack the smart way. I invented what I call the Pack-Out Elk Pack. It's lightweight (just 11 ounces) and folds into a fanny pack you can carry around all day. Once you down your elk, the pack unfolds and can carry up to 80 pounds of meat. I just wish I had thought of it on my first elk rather than my 23rd one. Having this pack sure would have made things easier.

I've learned that the best way to prevent spoilage is to be prepared and have the tools and equipment you need to take proper care of the animal. Another thing I do is always make a good shot so the elk doesn't run far. I quarter the animal and hang the quarters several hundred yards away from the carcass, in case a bear finds it. I use my Pack-Out Elk Pack for the first trip back to camp. There I spread the meat on a clean tarp inside a little pup tent in the shade and make sure no flies can get in to lay eggs on the meat. Then I grab my regular frame pack and head back out for the remaining loads.

John Keel
Wellington, MO

For information on Keel's packs, visit firstpackout.com.

Anaconda Smoke Stack

In reading *Montana Outdoors* for more than 30 years, I never realized that the smoke stack at Anaconda was a state park ("State Parks Little Gems, July–August). But how odd that this is a park at all. While mining has been and continues to be a major factor in Montana, and deserves its due credit in history, parks are for people. After reviewing the park website, I see that the only activity allowed is to view the stack at a distance; the park itself is not accessible. Do you suspect that the tons of heavy metal and other pollutants in and around the site do not allow access? I worked for Anaconda Forest Products in the early 1970s, and each year we traveled from Bonner to Anaconda to plant trees along the barren slopes adjacent to the stack. As far as I know, none of them survived.

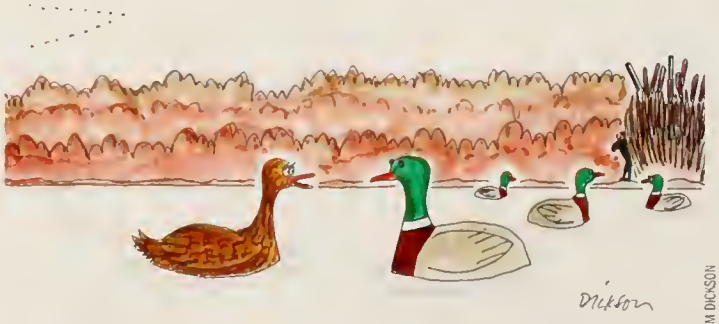
Don Hanley
Kirkland, WA

Rubber boas

Do rubber boas secrete oil or toxin through their skin if they are molested? My little rat terrier, Pip, always finds these snakes near our home. Today she found one near the river and snatched it with her teeth, thrashing it from side to side. I shouted at her to drop it, and she did, but then threw up right after. This is the second time I have seen this happen to her. Do these snakes have some kind of toxin with which to defend themselves?

Diane Maupin
Fall River Mills, CA

Walt Timmerman, a herpetologist and chief of the FWP Parks Division's Recreation Bureau, replies: Many amphibians have toxic skin secretions for defense. In fact, some frogs are deadly to predators. But I am not aware of any snake species shown to have toxic skin. Many snakes deter predators by emitting foul-smelling secretions and feces. It is likely the rubber boas you encounter secrete a fluid that is objectionable to your dog.



TOM DICKSON

"I feel we have a connection, but this relationship can't go anywhere unless you're willing to open up a little."

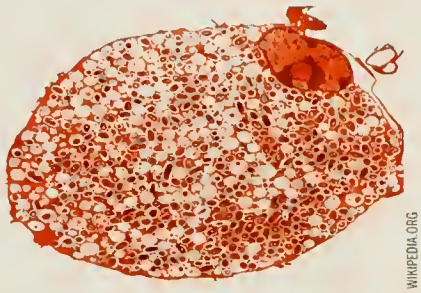
Correction

Due to an editing error, the article "Searching for the Elusive Orchidaceae," July–August 2008) incorrectly stated that lady's-slipper orchids do not produce pollen. In fact they do. What they don't produce is nectar.

CONCERNS ABOUT BRUCELLOSIS IN MONTANA

This past spring, brucellosis was confirmed in cattle on a Paradise Valley ranch. It was very bad news for Montana's livestock industry. Montana had been certified as brucellosis-free since 1985. But as a result of the disease occurring in two separate herds within 12 months—another outbreak occurred in a herd near Bridger in 2007—the U.S. Department of Agriculture is revoking Montana's brucellosis-free status. That will reduce the marketability of Montana cattle and require costly testing by ranchers.

Over the past 20 years, most of the concern about brucellosis has centered on Yellowstone National Park. Each winter hundreds of bison, a substantial percentage of which carries the disease, leave the park and represent potential transmission risk if they come near cattle grazing in adjacent national forests and on private lands. A much smaller percentage of elk also carries brucellosis. In July, the National Veterinary Services laboratory in Ames, Iowa, determined that the Paradise Valley infection likely came from elk, though scientists could not confirm the source. Four cattle herds in Wyoming that tested positive in 2004 were likely infected by elk crowded into winter feeding areas.



Colony of *Brucella abortus*

Some have said that because ranchers worked so hard to eliminate the disease in livestock, all elk and bison in and around Yellowstone National Park should be vaccinated, if not eradicated. Wildlife conservationists have rejected that option as impossible or unreasonable. Some have responded that because brucellosis originally came from domestic livestock and doesn't harm elk and bison populations, it is an agricultural concern, not a wildlife issue.

In fact, this is not an elk problem, nor a bison problem, nor a cattle problem. It's a Montana problem. Brucellosis should concern every Montanan, because it's in the state's best interest to foster and maintain a healthy livestock industry and healthy wildlife populations. With that in mind, Montana must do a better job of assessing and reducing the risk of transmission.

Since 1981, this department has tested nearly 7,000 elk for brucellosis exposure, mostly in the Greater Yellowstone area north and west of the park. The results show rates ranging from 0 to 5.5 percent. In 2006, FWP established a committee to improve brucellosis surveillance across the state. Last year we expanded testing, with hunter and landowner help, in six key areas: the Madison, Paradise, and Shields valleys, and areas near Gardiner, Bridger, and the Gravelly Mountains. Unfortunately, few of the more than 2,000 test kits we distributed to hunters and landowners produced usable samples.

This year we plan to redouble efforts to collect blood samples from hunter-harvested elk in the Paradise and Madison valleys and in Carbon County. The immediate objective is to better understand the disease's geographic range and identify and learn where elk and cattle are coming into contact with each other most often. This information is fundamental to effective risk management that might include adjusting livestock and wildlife management practices.

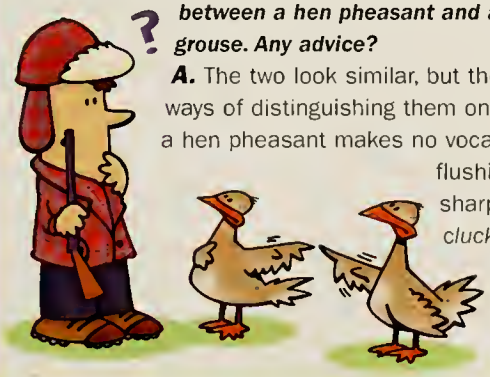
Tolerating current brucellosis uncertainties and risk is not an option; Montana's livestock industry and ranching families are too important to this state. But slaughtering or inoculating elk herds that pose a small risk of disease transmission is not an option either. It would be infeasible to eliminate or vaccinate entire herds of these wide-ranging wild animals. Besides, elk and elk hunting are also culturally and economically important to Montana.

Like so many problems that affect wildlife and livestock, this one has no quick or easy solution. But one thing is clear: Finger pointing and laying blame won't accomplish anything. Everyone who has a stake in this matter needs to work together. That includes livestock growers, hunters, and representatives of federal and state agencies. Only then can we assess where disease transmission risk is highest and figure out how best to reduce the risk.

—**M. Jeff Hagener,** *Director, Montana FWP*

NATURAL WONDERS

ILLUSTRATION BY PETER GROSSHAUSER



Q. When hunting, I have a hard time telling the difference between a hen pheasant and a sharp-tailed grouse. Any advice?

A. The two look similar, but there are three ways of distinguishing them on the wing. One, a hen pheasant makes no vocal noise when flushing, while a sharptail makes a *cluck-cluck-cluck* sound. Two, sharptails have white speckles in the wing and breast, while hen pheasants do not. And three, sharptails have a distinctive flight pattern of three-wingflaps-then-glide, three-wingflaps-then-glide.

Q. Where can I find on-line maps showing public land and private land boundaries?

A. Public and private land ownership maps for all of Montana are maintained by the Montana Natural Heritage Program and Natural Resources Information System. These maps are a great resource for hunters, anglers, and other outdoors recreationists. Visit the site at http://nris.state.mt.us/gis/ownmaps.asp.

Wolves back on the list

A July court decision puts the species once again under federal management authority

Just four months after the Rocky Mountain gray wolf was removed from federal authority, a federal court in Missoula has reinstated Endangered Species Act protection. On July 18, U.S. District Court Judge Donald Molloy granted a temporary court injunction sought by a coalition of 12 environmental groups. The coalition asked for the injunction as part of a lawsuit challenging a decision by the U.S. Fish and Wildlife Service (USFWS) on March 28 to remove wolves from the federal list of threatened and endangered species. That decision granted Montana, Idaho, and Wyoming full legal responsibility for managing wolves within their state borders. The lawsuit plaintiffs, led by Earthjustice, argued that the wolf has not yet met all of the recovery criteria. With the new court ruling, wolf management is once again under federal authority in all three states.

The Rocky Mountain Elk Foundation called the federal reinstatement a "step backward" for wolf management. "We believe delisting the wolf and turning management over to the states is a very reasonable approach," says David Allen, the foundation's president and CEO. "All three states have a proven record of managing keystone species like bears and mountain lions, and there is no reason to expect anything different with wolves." But the Defenders of Wildlife applauded the judge's decision. "It stops the continued and almost indiscriminate killing of wolves under the states' management plans that could have put the long-term recovery of the wolf at risk," says Suzanne Asha Stone, the group's Northern Rockies wolf conservation specialist.

Wolf numbers in the Rockies have grown from just a few in 1979 to roughly 1,500 today. The federal recovery goal of at least 300 wolves in the region was reached in 2002.

> "We're disappointed with the ruling, because Montana's wolf population is healthy, growing, and firmly established in our state."

Montana Fish, Wildlife & Parks intervened in the lawsuit brought against the USFWS and opposed the injunction request. "We're disappointed with the ruling, because Montana's wolf population is healthy, growing, and firmly established in our state," says Jeff Hagener, FWP director. "Montanans have shown great patience and cooperation during wolf recovery. The department is committed to continue its participation in the legal proceedings on behalf of Montanans."

As a result of the judge's decision, the geographic line that previously divided Montana's wolf population has been reinstated. The line separates the "nonessential experimental" population in the southern half of the state from the "endangered" population to the north. As part of a previous agreement with the USFWS, Montana will continue to lead wolf monitoring and public outreach efforts, direct conflict management, and coordinate and authorize research. The state will retain the authority to manage wolves according to federal regulations for as long as the animals remain listed, Hagener says. Under these regulations:

- Wolves in the northern endangered population may not be hazed, harassed, or killed by livestock owners or other citizens.
- Wolves in the southern experimental population may be hazed or harassed when too close to livestock. Wolves may be killed by livestock owners if seen actively chasing or attacking livestock or domestic dogs on either public or private land. The incident must be reported

to FWP within 24 hours.

• State and federal officials can employ lethal and nonlethal controls of problem wolves in each area.

• Anyone may kill a wolf in self-defense or to defend the life of another person.

The recent court ruling puts plans for a Montana wolf hunting season on hold.

The July decision is the first step in a long legal process. Judge Molloy must still rule on the merits of the case brought against the USFWS.

To learn more about Montana's wolf management, visit fwp.mt.gov and click on "Montana Wolves."

Gold medal winner

For the third time in the past four years, *Montana Outdoors* was named the nation's top state conservation magazine by the Association for Conservation Information (ACI). The announcement came at the organization's annual awards ceremony, held in Nashville, Tennessee, in July.

Montana Outdoors also won first place in the fisheries article category for "$50 an Ounce," about the controversy over paddlefish harvest in Glendive, and both a first place and second place award in the general interest article category for, respectively, "The High Price of Gas," on the conflict over natural gas development, and "Venison Alchemy," on cooking tough cuts of elk and deer.

Organized in 1938, the ACI is a nonprofit organization of communicators working for state, federal, Canadian, and private conservation agencies and organizations.

Bait and bacon

When Blanche Seccombe, Montana's oldest angler, recently fished from a dock on Flathead Lake at Wayfarer's State Park, she wasn't disappointed that the fish weren't biting. After all, the Bigfork resident has caught plenty of fish during her 106 years.

Seccombe was born in 1901, before monofilament line, spinning reels, and most other fishing gear she uses today were even invented.

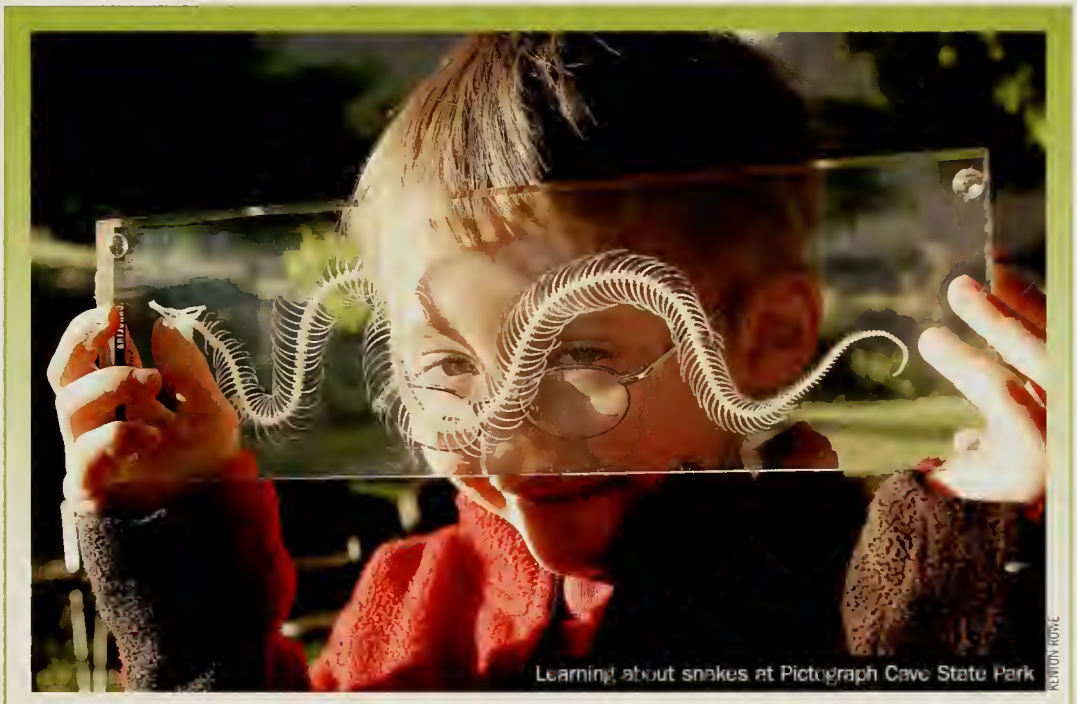
In June, she also took part in the 15th annual Fishing Without Barriers Day. The event on Flathead Lake provides free boat rides, gear, and food to people with disabilities.

"It was a smooth ride, very nice, and I didn't get seasick," Seccombe says. "I had a lot of confidence in the boat driver." That was her son, Bob, who captained a boat for his mother and 11 other anglers with disabilities as part of the event.

Blanche Seccombe, age 106, casts from a dock at Flathead Lake.

JOHN FRALEY/FWP

Seccombe, who is still able to get in and out of a boat without assistance, has just one secret to her longevity. "I eat crisp bacon every morning," she says.



Learning about snakes at Pictograph Cave State Park

KENTON ROVIE

Recreational, but also educational

Most of the more than five million visits each year to Montana state parks and fishing access sites are for hiking, picnicking, fishing, launching a boat, or some other recreational activity. Yet state parks also offer many programs, tours, and events that provide information about Montana's cultural and natural history. In 2007, nearly 95,000 Montanans and state visitors took part in:

- School programs (20,019 participants)
- Group tours and bus tours with programs led by park rangers (4,681 participants)
- Campfire lectures, outdoors workshops, and tours of Lewis and Clark Caverns (54,051 participants)
- Park ranger–led off-site programs, such as presentations to Lions Clubs or local garden clubs (3,430 participants)
- 44 special events held in parks across the state (12,697 participants)

"These numbers speak highly to the dedication of parks employees to provide interpretive programs, education programs, and special events for the public," says Ken Soderberg, chief of the FWP Parks Division's Visitor Services Bureau.

D. Linnell Blank, of Whitefish, shot this fall scene while walking through the Great Bear Wilderness, just south of Glacier National Park. "It's one of my favorite hiking areas, and I was out that particular day because I wanted to compare my regular film camera to a digital one I'd borrowed," she says. "I went to Stanton Lake first, but it was covered in fog. So I walked down a ways along the outlet, and this lovely clear water caught my eye. Then the fog started to lift, and I could see those gorgeous yellow larches on the other side." Blank took shots with both cameras, and then later compared the images. "The digital quality was as good as the film, plus you could e-mail the photos. That's when I went digital." ■

FLUSH WITH BIRDS

A look at Montana's remarkably diverse upland bird populations

BY DAVE CARTY

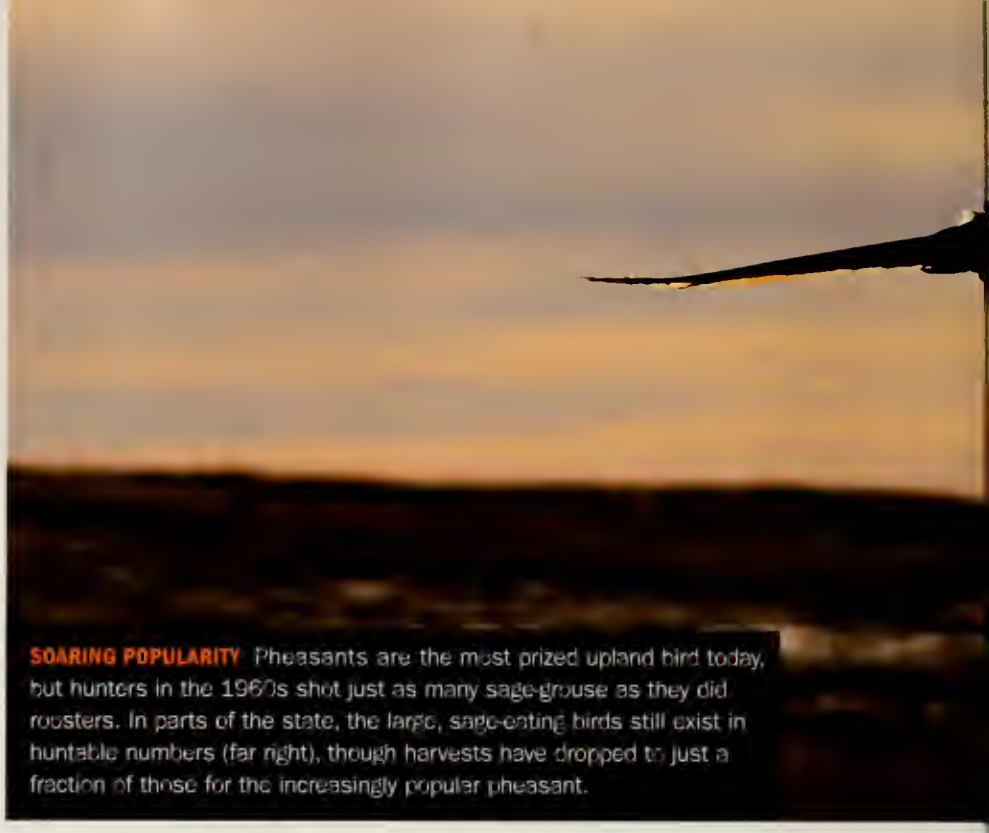
There's a ranch west of Big Timber that I've hunted for nearly 15 years. I can usually count on my dogs finding one or two coveys of Hungarian partridge there during an afternoon hunt, but it's not what I'd call a hotspot. Then, two years ago, something unexpected happened.

My buddy John and I arrived late in the day. After donning our hunting vests, we set out downhill toward a spot where a stream and two corners of a fence converge. For some reason, it was filled with Huns. For the next two hours, we put up one covey after another, maybe 80 or more birds in all. Never before had the hunting at that spot been so fantastic, and never since have I had a hunt there like it. My astonishment at finding so many birds in a place that I thought I knew stays with me still. ▸▸

BILLBUCKLEYPHOTOGRAPHY.COM

Maybe nonresident hunters feel the same surprise when they discover the diversity of upland bird hunting in Montana. We can't lay claim to the pheasant numbers of Iowa and the Dakotas, but we offer some great rooster hunting here, as well as a mix of other upland species unavailable in those Midwestern states. Upland hunters can pursue blue (dusky), ruffed, and spruce grouse in almost every mountain range of western Montana. Though we don't have bobwhite quail like Texas and Kansas, we've got the Hungarian partridge, as fine a bird to hunt over a pointing dog as you could ever want. Montana also supports healthy populations of native sharp-tailed grouse and a healthy and huntable population of sage-grouse. We've even got a growing and expanding population of wild turkeys.

Big game will probably always be a bigger draw here, but bird hunting is growing in popularity. Nonresidents are learning about the millions of acres of Bureau of Land Management (BLM) grasslands and the private uplands available through the Block Management Program. And more Montana big game hunters are discovering the joys of hunting birds with dogs and the easygoing pace of walking across a prairie with a buddy or two.



SOARING POPULARITY Pheasants are the most prized upland bird today, but hunters in the 1960s shot just as many sage-grouse as they did roosters. In parts of the state, the large, sage-eating birds still exist in huntable numbers (far right), though harvests have dropped to just a fraction of those for the increasingly popular pheasant.

RING-NECKED PHEASANTS

Talk to a Montana bird hunter, and chances are the reason he or she owns a shotgun is to hunt these gaudy non-natives (they originally came from Asia). Pheasants inhabit nearly every farmed valley in the state, with the highest concentrations in the north-central and northeastern regions. The birds are especially abundant near rivers, streams, and marshes, particularly next to crop fields and nesting grasses. In thick bottomlands or cattails, Labrador retrievers and springer spaniels are the most effective breeds for rousting roosters from dense vegetation and into the air.

Pheasant numbers have fluctuated since the 1960s depending on nesting season weather and changes in federal crop set-aside programs. Since the Conservation Reserve Program began in the late 1980s, the annual harvest has steadily increased, from 42,000 in 1986 to roughly 150,000 in recent years.

The pheasant's growing popularity in Montana over the past 15 years has created public access problems, as more and more landowners lease their property for exclusive use of paying hunters. Offering relief to the public hunter is the state's Block Management Program, a private land hunting access program that enrolls more than 8 million acres each year, some of it in Montana's prime pheasant country. A few years ago, while hunting with a friend in a mix of Block Management and other private land in eastern Montana, we flushed five or six dozen roosters and hens in a single day.

SAGE-GROUSE

It's hard to imagine, but in the 1950s and '60s, sage-grouse (also known as sage hens) were as popular with Montana bird hunters as pheasants. Annual harvests, even as late as the 1970s, were roughly 50,000 birds, about the same as the pheasant tally. In recent

Ring-necked pheasant

Non-native species

Weight: Males: 3 lbs., females: 2 lbs.

Habitat: Open grasslands and croplands with brushy cover, especially along watercourses.

Wingshooting appeal: Large birds that make fairly easy targets. Great eating. Males, called roosters, have beautiful plumage.

General year-round range

Sage-grouse

Native species of concern

Weight: Males: 4–7 lbs., females: 3–5 lbs.

Habitat: Sage shrublands.

Wingshooting appeal: The largest grouse in North America. A remnant of earlier times when the species was far more abundant in the West. Montana has some of the nation's largest huntable populations.

General year-round range

Sharp-tailed grouse

Native species

Weight: 2–2.5 lbs.

Habitat: Grasslands mixed with coulees filled with shrubs and brush.

Wingshooting appeal: Hold well for pointing dogs. A native grassland species. Found in many parts of Montana, often on large tracts of accessible public land.

General year-round range

JIM ELDUEN

CHUCK & GALE ROBBINS

years, upland hunters have switched their focus to pheasants and other species, causing the annual sage-grouse harvest to fall to fewer than 5,000 birds.

Montana still retains many viable—and huntable—sage-grouse populations. But because populations and distribution have declined over much of their range elsewhere in the West, the species has repeatedly been considered for listing under the Endangered Species Act. As a result, Fish, Wildlife & Parks keeps close tabs on Montana populations. Rick Northrup, the agency's game bird coordinator, says biologists pay particular attention to habitat changes that affect the sage-grouse's long-term viability. Conversion of sagebrush grasslands to crops and the

Hungarian (gray) partridge

Non-native species

Weight: 14 oz.

Habitat: Grasslands interspersed with wheat fields, weed patches, and brushy cover.

Wingshooting appeal: Hold well for pointing dogs. Great eating. Flush wildly in coveys of 10 to 15 birds that fly in all directions.

General year-round range

Blue (dusky) grouse

Native species

Weight: 2.5–3 lbs.

Habitat: Conifer stands at high elevations. In early summer, the birds descend to lower elevations around forest edges and openings.

Wingshooting appeal: Hold well for pointing dogs. Great eating. Explosive flush can make them a challenging target.

General year-round range

Ruffed grouse

Native species

Weight: 1.5–2 lbs.

Habitat: Dense brushy mix of conifer and deciduous trees, especially aspen. Often found along stream bottoms.

Wingshooting appeal: Hold well for pointing dogs. Great eating. Explosive flush and erratic flight pattern can make them a challenging target.

General year-round range

potential effects of growing oil and gas development in sage-grouse range are particular concerns. FWP and other partners also work with landowners to help conserve grouse habitat on private land.

Sage-grouse are widely, although sparsely, distributed in eastern Montana. In the state's southwestern region, a small but productive swath of sage-grouse habitat runs through Madison and Beaverhead counties.

Finding the birds is a matter of walking until they turn up, which is often in seeps and other wet spots within sage brushlands. Dogs are a big help, though they need to remain steady. One of my pointers, a pint-sized Brittany named Fancy, pointed her first sage-grouse in a vast expanse of sagebrush in Meagher County. The bird—almost as big as the dog—flushed from under her nose. As it struggled to gain altitude, she chased the grouse over a hill, nipping at its feet. I never got a shot.

SHARP-TAILED GROUSE

Like sage-grouse, sharptails gather each spring on historic dancing grounds, called leks. FWP biologists monitor populations of both species by counting lek attendance each spring as well as hunter harvest each fall. Northrup says the annual sharptail harvest peaked in the mid-1970s at roughly 100,000 birds; more recently it has averaged around 55,000. As with other grouse, sharpies fare poorly in drought, especially in areas where native habitat has been lost.

Sharptails have long been a staple of Montana bird hunters. They are fairly easy to hit compared to the lightning-fast Huns, and young grouse hold well for pointing dogs. That changes late in the season, when the birds "flush wild" in large flocks while you (and your frustrated dog) are still hundreds of yards away. I find sharptails by hunting coulees filled with chokecherries, snowberries, and buffalo berries, where the birds like to roost in the heat of the day.

Huns have everything I'm looking for in a game bird: They hold well for a pointing dog, offer fast and challenging shooting, taste great, and, to my way of thinking, are Montana's handsomest birds.

Many BLM acres, state trust lands, and Block Management areas contain great sharptail cover, which means the birds are easily accessible. In Montana, sharptails are distributed in most shrub-grassland habitats east of the Continental Divide. The largest concentrations are found in central and far-eastern Montana.

HUNGARIAN PARTRIDGE

Like the ring-necked pheasant, the imported Hungarian partridge has so successfully adapted to the Montana landscape that many hunters are surprised to learn it is not native. The first coveys of what are also called gray partridge were transplanted into Montana and Alberta in the early 1900s.

Huns are my favorite Montana game bird. And my favorite place to hunt them is around Great Falls and on agricultural lands near Lewistown. Other localized spots can be just as good. Look for the birds around vacant farmsteads, weedy fencelines, field corners, and irrigation ditches. I know of at least one covey that lives on a mountain in the Absaroka Range, 1,500 feet above the Paradise Valley floor.

Hun populations are nearly impossible to estimate. FWP uses hunter harvests as an index to compare how populations fare from year to year. Northrup says annual harvests for the last couple of decades have ranged from 30,000 to 60,000 birds, adding that Hun populations often increase substantially after mild winters or other favorable conditions. "We've begun an analysis that compares weather factors to 30 years of harvest data to better understand what affects Hun and other game bird abundance," he says.

Even during peak years, experienced hunters know they might walk for miles before moving a covey. That doesn't deter us one bit. Huns have everything I'm looking for in a game bird: They hold well for a pointing dog, offer fast and challenging shooting, taste great, and, to my way of thinking, are the state's handsomest birds.

BLUE (DUSKY), RUFFED, AND SPRUCE GROUSE

You don't hear a lot about these three species, which FWP groups together in a category called "mountain grouse." That's a

Spruce grouse

Weight: 1 lb.

Habitat: Dense fir, spruce, and pine forests, primarily in mountains west of the Continental Divide.

Wingshooting appeal: Hold well for pointing dogs. Explosive flush can make them a challenging target.

Native species

General year-round range

Mourning dove

Weight: 5 oz.

Habitat: Grain fields and grass fields, especially those near rivers, streams, and lakes.

Wingshooting appeal: Great eating. Extremely fast, making them a challenging target.

Native species

General summer range

Wild turkey

Weight: Males: 16 lbs., females: 9 lbs.

Habitat: Open ponderosa pine forest in rugged terrain, interspersed with grasslands and brushy draws.

Hunting appeal: Extremely wary. In spring, toms (males) must be called into range by a well-concealed hunter.

Non-native species

General year-round range

pity, because the birds offer some exceptional hunting opportunities. What biologists are now calling the dusky grouse, commonly known as the blue grouse, is a chicken-sized bird that weighs about 3 pounds. It looks like an extra-large ruffed grouse but is gray-blue. The spruce grouse is darker and closer in size to a ruffed grouse. Ruffed grouse are well known to hunters of the Eastern Seaboard, Appalachia, and the Upper Midwest. These handsome black-and-brown grouse are considered the premier game birds among wingshooters of the North Woods.

In Montana, ruffed and blue grouse live in most mountain ranges, but each species occupies different habitat. Ruffs are found primarily along stream bottoms, especially those with aspen. Blue grouse are found

DONALD M. JONES

GIVING GAME BIRDS A BOOST

Rick Northrup wants hunters to know about Montana's Upland Gamebird Enhancement Program (UGEP). "They're the ones paying for it, and it's a great program doing great things for birds, landowners, and hunters," he says.

The program began in 1987 to fund pheasant releases. The following legislative session, lawmakers adjusted the program so that leftover funds not used for pheasant releases could go to habitat improvement projects. Two years later, legislators changed the program again, putting the primary emphasis on habitat enhancement and conservation while also providing funds that compensate landowners who raise and release pheasants on their property.

Pheasant releases provide opportunities for good pheasant hunting on private land. Habitat enhancements promote long-term population increases for pheasants, other upland birds, and songbirds. A typical project pays to plant winter shelterbelts, often in cooperation with local Pheasants Forever chapters. Or it revitalizes stands of Conservation Reserve Program grasses that have deteriorated and no longer produce enough insects for young birds. The UGEP also establishes food plots within habitat improvement areas, helps landowners manage cattle grazing to benefit upland birds, and, increasingly, pays for conservation easements that secure habitat and provide access for hunters and wildlife watchers. Funds have also been used to regenerate aspen on the Beartooth Front to boost ruffed grouse populations.

UGEP projects are only done on at least 100 contiguous acres, and landowners must be willing to allow a reasonable amount of public hunting access. Negotiated between FWP and landowners, the access level is included in a standard contract. Projects also take place on public lands and on private property enrolled in Block Management. The funds—roughly $650,000 annually—come from hunting license dollars ($2 and $23 dedicated from, respectively, each resident and nonresident upland bird hunting license). In late August, FWP puts signs up at project sites and produces an access guide with maps to help hunters find and acquire permission for hunting project areas.

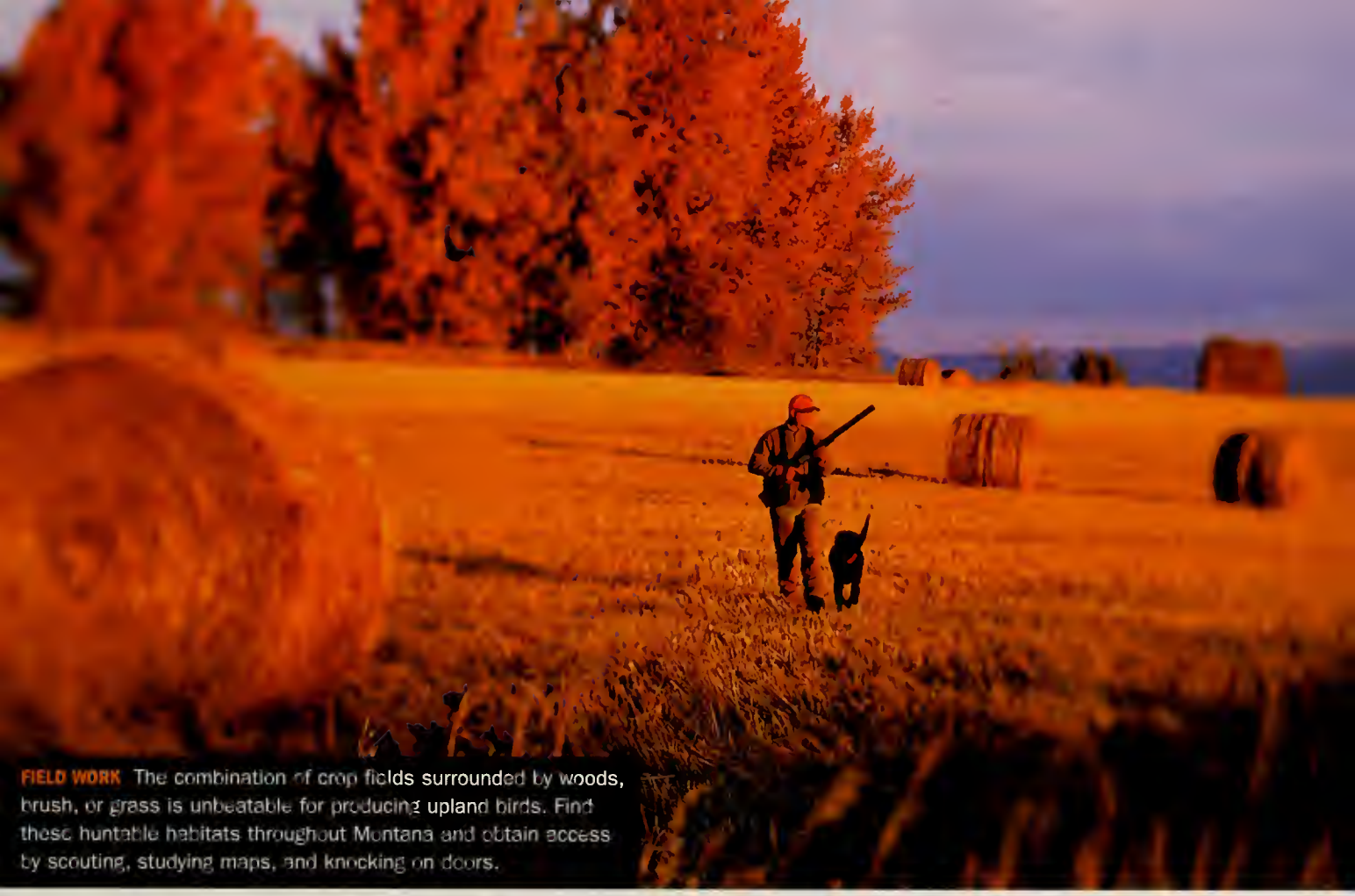
For more information on the UGEP, visit the FWP website at fwp.mt.gov. Click on "Wild Things," then look for "Upland Birds" under "Birds." ■

Hungarian partridge

Spruce grouse

Mourning dove

Ruffed grouse



FIELD WORK The combination of crop fields surrounded by woods, brush, or grass is unbeatable for producing upland birds. Find these huntable habitats throughout Montana and obtain access by scouting, studying maps, and knocking on doors.

higher in elevation. In September, look for them along open glades, meadows, and clear-cuts surrounded by conifer stands. As winter approaches, they move even higher and often show up near rocky outcroppings. Spruce grouse live deep in the forests of western Montana mountains.

Like Huns, mountain grouse are difficult to monitor. Biologists look closely at annual harvests to estimate population trends. After a high in the late 1970s and early '80s, Montana's mountain grouse harvest plummeted. Northrup thinks the drop was not due to declining grouse populations but rather the U.S. Forest Service closing logging roads that provided easy access for hunters to drive into grouse country.

MOURNING DOVES

Mourning doves live and nest everywhere in Montana, including forests and grasslands, but that's small consolation to the hunter hoping for a dove shoot. By September 1, when the season opens, most of these warm-weather birds have migrated south. Sometimes a prolonged heat spell in late summer keeps doves around until mid-September. But for the most part, this hunting opportunity usually lasts only a few days.

Scout preseason to find the best pass-shooting spots. Look for fields where doves feed, then wait at dusk between feeding areas and trees where they roost at night. Doves are small, but they make great table fare.

WILD TURKEYS

In my two-plus decades of living in Montana, wild turkey numbers have increased dramatically. For example, this spring I saw a wild turkey walking up the bed of the Gallatin River, an area where 15 years ago the species did not exist.

Northrup says wild turkeys have been expanding from their core habitats and are also in new territory thanks to FWP transplant programs conducted with the National Wild Turkey Federation.

New flocks have been added to the west end of the Bears Paw Mountains, along the Missouri River from the Ulm area downstream to Fergus and Petroleum counties, along the Milk River, and in the Chinook area. Previous transplants are beginning to provide hunting elsewhere in the state. Northrup says that before an area is considered for turkey releases, it must be open to public hunting and contain adequate nesting and winter habitat. Many turkey transplants over the past decade have been helped by recent mild winters.

Spring wild turkey hunting is more like elk bowhunting than traditional upland bird hunting. It's all about stealth, calling, and concealment. Woodticks and frequent spring storms keep many hunters from the woods that time of year. But wild turkey fans find the hunt to be challenging and exciting.

For more information on upland birds, visit the FWP website at fwp.mt.gov. Click on "Wild Things," then look for "Upland Birds" under "Birds."

Dave Carty, Bozeman, is a longtime contributor to Montana Outdoors.

A BOOM IN A SILENT SPORT

Along with more participants, bowhunting is attracting increased regulatory scrutiny.

BY ANDREW MCKEAN

Joe Wiles moved to eastern Montana last fall with a bad back and a brand-new bow. The formet police chief from Kansas had injured his spine falling through a burning building during a rescue attempt. He settled on Glasgow because of its small-town intimacy and abundant hunting opportunities in the Milk River Valley and Missouri River Breaks, and bought the bow to rehabilitate his back. "I didn't have any intention of bowhunting," says Wiles. "I used the bow as an exercise tool to strengthen my arms and back. But then I realized that if you don't bowhunt in Montana, you miss most of the hunting season."

Wiles's epiphany is familiar to a growing segment of Montana hunters. Bowhunting, which begins with the archery pronghorn season opener on August 15, provides an additional eight to ten weeks of hunting before the general firearms seasons. Unlike many other neighboring states, Montana does not require big game hunters to restrict themselves to either archery or rifle seasons. Hunters here can chase elk with broadheads in September, and then return with bullets in November when the firearms season is in full swing.

That's great if you're a hunter who likes to spend as many days afield as possible. But state officials think Montana has become too generous with its archery regu-

lations. The Montana Fish, Wildlife & Parks Commission recently imposed archery hunting restrictions in parts of the state, citing overcrowding and the loss of public access on private land as its main concerns. Bowhunting's increasing popularity may attract additional regulatory scrutiny down the road, as officials consider the sport's growing effects on trophy elk populations, public hunting access, and the equitable opportunity to pursue bull elk and other highly prized quarry.

GROWING NUMBERS

In recent years, Montana has turned into Big Bow Country. While the number of archery hunters nationally has remained flat at roughly 3 million for the past several years, participation in Montana has been growing. Last year, nearly 41,000 hunters purchased an archery "stamp," a $10 permit allowing them to participate in archery-only seasons. That's more than twice the number who bought the stamp in 1988. FWP officials estimate that more than one-third of Montana's roughly 100,000 elk hunters took advantage of the option to hunt with both a firearm and a bow last year. Participation in Montana's archery-only antelope season has grown especially fast. In 1998, a total of 1,845 hunters bought permits that allow bowhunting anywhere in the state. By 2007, the number had nearly tripled to 5,523.

Why is archery hunting so popular in Montana—especially when rifle hunting participation has plateaued in recent years? "Montana has some very liberal bowhunting regulations," says Steve Sukut, a long-time officer in the Montana Bowhunters Association, the state's leading advocacy group for the sport. "Up until this year, you've been able to hunt trophy elk in areas highly restricted for rifle hunters. Not many places in the West have that kind of opportunity." One of the most popular spots is the Missouri River Breaks, where archers from across the country flock each September for the chance of seeing and stalking large bulls.

Sukut says bowhunting also provides a more intense hunting experience. "When you look at an animal 200 yards away through a rifle scope, you see a target," he says. "But at 20 yards, the distance most bowhunters feel is the lethal range, you have a connection to the animal. You can see it up close and sometimes even hear it breathe. I think it's a lot more challenging than rifle hunting. For hunters who have achieved their goals with a gun, it's almost like they get to rediscover the thrill and challenge of hunting all over again."

Others also point out the camaraderie of bowhunting, the tradition of warm-season hunting camps in handsome landscapes, the chance to see more big bulls, and the peaceful nature of hunting with gear designed to be quiet.

NOT WHAT ROBIN HOOD USED

Quiet, yes, but not always primitive. Sukut and a small number of other archers hunt with what's called traditional equipment. These recurve bows or longbows rely only on the muscle in the archer's arm to pull the bowstring, which bends the limbs that propel the arrow. But most Montana bowhunters shoot compound bows. The pulley-and-cam devices increase arrow speed while decreasing the strength required to pull the bowstring and hold it at full draw.

Highly evolved compound bows bear little resemblance to traditional bows. One manufacturer describes its top-selling model as having an "ultra-smooth CenterTrac Binary Cam System coupled with Center Pivot limb technology and an extremely forgiving 8¼-inch brace height." High-tech compound bows are made of space-age polymers and contain complicated sighting gadgets. A mechanized release allows an archer to draw

JIM HERRY

3 million
Bowhunters in the United States

40,950
Hunters in Montana who purchased archery stamps in 2007

1,845
Hunters in Montana who purchased statewide bowhunting permits in 1998

5,523
Hunters who purchased statewide bowhunting permits in 2007

Andrew McKean, of Glasgow, is the hunting editor of Outdoor Life.

FWP Commission takes aim at archery regs

Citing more overcrowding, less access, and reduced equity between archery and rifle hunters, the FWP Commission in March adopted new bowhunting rules.

Commission members imposed a quota of 5,600 archery-only antelope licenses (officially designated as "900-00" licenses). Previously unlimited, these licenses allow holders to hunt either-sex pronghorn with archery equipment in any open hunting dis-

BOW BUSINESS Reasons for Montana's bowhunting boom include extended seasons, access to big bulls, and equipment that's easier to use. Growing interest translates into business opportunities. Says one archery technician, "These new hunters are buying the latest compound bows on the market."

DIRK SHADD

the bow without even touching the string. And modern compounds are capable of delivering arrows with killing energy out to 50 yards and, increasingly, even farther. "The archery industry is gaining arrow speed each year," says David Strandberg, a bow technician at Buffalo Jump Archery in Helena. "Right now the average recurve bow shoots an arrow at under 200 feet per second. The average compound shoots a lighter arrow at more than 300 feet per second."

Such lethal velocity doesn't come cheap. Strandberg says a package containing a mid-priced compound bow and components—sights, releases, quivers, and arrows—can cost between $1,000 and $1,300. Higher-end packages run nearly twice that. "Our average customer is maybe 25 years old, someone who has hunted with a rifle but wants to diversify now that he has some disposable income and time," says Strandberg. "He hears about all the fun his buddies are having in the archery season, and he wants to do it, too."

Strandberg says about half his customers are new to Montana. "They moved at least partly because they can do it all here," he says. "They can hunt with a rifle and a bow. They can get away from the crowds of the rifle season and enjoy the best weather of the fall. And if they don't get anything with their bow, they still have the rifle season."

Some longtime bowhunters claim these

trict in the state starting August 15. Up to 10 percent of the licenses, or no more than 560, will be available for nonresidents if application demand exceeds supply.

In the Missouri River Breaks, hunting districts previously open to unlimited either-sex archery permits now have quotas that limit hunter numbers. By default, this will also reduce the potential number of clients who would pay for exclusive access to private land. The permits were allotted through a drawing with a June deadline.

In 23 hunting districts outside the Missouri Breaks where rifle elk hunting is limited but archery elk hunting was previously available with only a general hunting license, bowhunting for bull elk will now be restricted. Bowhunters must apply for the June drawing for unlimited permits to hunt bulls in these units, generally in central and southeastern Montana. Archery hunting for antlerless elk in the districts will remain available with just a general license.

In much of western Montana, where rifle elk hunting is unrestricted, archery elk hunting will remain available with just a general elk license and an archery stamp. ■

newcomers are crowding the field. But most archers say the sport has room for additional participants. In a 2000 FWP survey of Missouri River Breaks bowhunters, 65 percent thought the number of other hunters observed in the field was acceptable.

SHAKEUP IN THE BREAKS

The bowhunting boom is sending waves across Montana. Nowhere is this more pronounced than in the Missouri River Breaks, a remote stretch of timbered badlands abutting the Missouri River and Fort Peck Reservoir in east-central Montana. Last year, nearly 5,200 licensed bowhunters were permitted to hunt the Breaks, which is famous for large elk, a high ratio of mature bulls, and open terrain that allows hunters to spot their quarry from a distance and sneak close.

To hunt elk with a bow or rifle, nonresidents must obtain a general license either through an annual drawing or by buying a "variable-priced" license, available only by hiring an outfitter. Many hunting districts also require a special permit provided through another drawing. But in the Breaks, there was no lottery for archery permits. That attracted bowhunters from across Montana and the United States, resulting in the archery bull harvest in many Breaks hunting districts routinely topping the rifle bull harvest. In recent years, nearly 30 percent of bowhunters in the Breaks have been nonresidents.

"Hunters are smart, and they always gravitate toward the best hunting opportunities," says Lewistown FWP wildlife biologist Tom Stivers. "They've learned that in areas with limited entry for rifle hunting, they can find more bull elk. And with Montana's liberal archery regulations, they've learned that they could pick up a bow and hunt the best bull populations in the state with few obstacles."

Just as hunters respond to opportunity, landowners respond to growing interest in their property. "Big elk can have a strong attraction to hunters that often results in leasing and other forms of exclusive access on private land," says Quentin Kujala, chief of the FWP Wildlife Division's Management Bureau. "Leasing can decrease the amount of land open for free, public hunting and put additional hunting pressure on public land." Kujala adds that by restricting public access, leasing can also limit FWP's ability to effectively manage elk that cause severe depredation problems.

BILL BUCKLEY PHOTOGRAPHY.COM

> "With Montana's liberal archery regulations, they learned that they could pick up a bow and hunt the best bull populations in the state with few obstacles."

The easy availability of high-quality elk hunting in the Breaks has created conflicts among hunters. Some want to maintain the abundant bowhunting opportunities. Others, complaining of overcrowding, private land leased for exclusive access, and a disproportionate share of trophy bull elk going to archers, argue that Montana needs additional bowhunting restrictions.

In March of this year, the FWP Commission agreed that changes were necessary. After reading summaries of several thousand written comments and dozens of rancorous public meetings, commissioners imposed sweeping restrictions on archery hunting for elk and antelope. They pointed to hunter overcrowding, a widening equity gap between archery and rifle elk hunters, and the loss of public hunter access on private land as factors in their decision. The new restrictions focus on most hunting districts in the Missouri Breaks as well as a few other areas—mainly in central and eastern Montana—where rifle hunting had been restricted through lottery drawings but bowhunting permits were open to all comers (see details in sidebar, page 18).

FWP wildlife managers point out that bowhunters have been adding significantly to the bull harvest. "In most of the last several years in Hunting District 410 and the 600 districts, archers have harvested more bull elk than rifle hunters," says Stivers. "And in most years they take more mature six-point bulls than rifle hunters."

Kujala adds that bowhunters in the Breaks don't harvest many cow elk and thus don't contribute much to population management. "The FWP Commission decided it was appropriate to restore some equity to hunting opportunities by restricting bowhunter numbers," he says.

Though many bowhunters support additional restrictions on archery hunts, talk of "equity" concerns Sukut and Strandberg. Each year, they hear rumors that Montana might be headed toward the same constraints that dominate archery hunting elsewhere in the West. These restrictions require hunters to choose between hunting with a bow or with a rifle. Kujala says FWP does not advocate the so-called "pick-your-weapon" restriction. "It came up during commission meetings on the Breaks, but the commissioners decided it was not an option they wanted to pursue," he says.

Strandberg and others in the archery business worry nonetheless. "If Montana ever goes to a pick-your-weapon season, I think you'll see more than half the bowhunters return to hunting just with a rifle," he says. "You'll lose those guys who are bowhunting now because they can, not necessarily because they're committed to it."

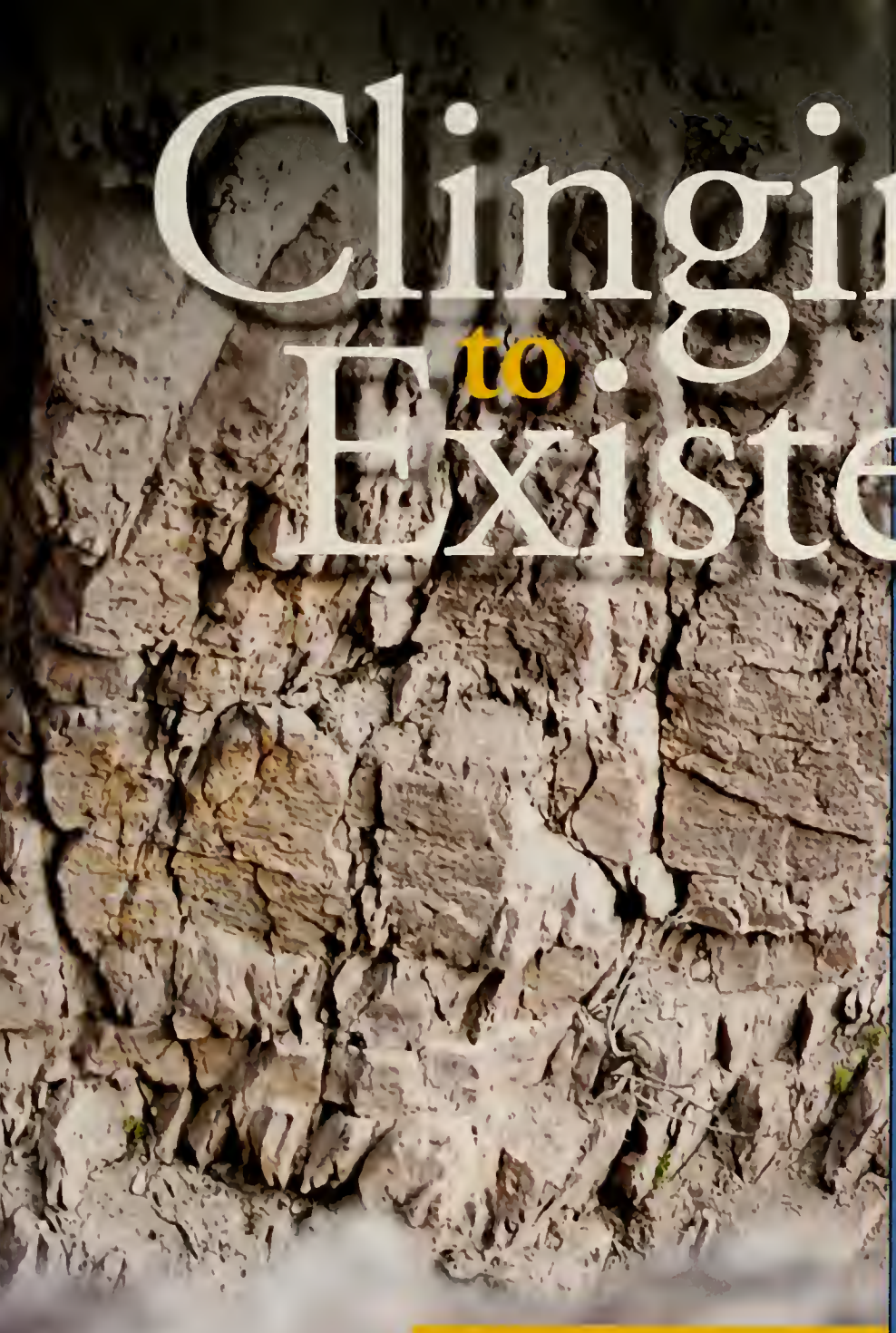
Ultimately, it may be the fundamental appeal of bowhunting, not extra hunting opportunities, that keeps the sport healthy. According to Sukut, states with either/or restrictions have lost bowhunters at first but soon gained many back. He says the hunters decided to forego rifle seasons in exchange for the longer and more comfortable seasons, less competition, and more challenging opportunities that bowhunting affords. "I hope Montana never gets to the point where you have to choose your weapon," he says. "I would choose a bow, but I wouldn't want to have to."

END OF AN ERA? Bowhunting will likely continue attracting those looking for longer hunting seasons and the challenge of stalking close to big game. But the heydays of unlimited access to Montana's trophy bulls may be over.

TONY BYRUM

Mountain goats have managed to survive for thousands of years in some of the state's most brutal, unforgiving environments.

Clinging to Existence



CLIFFHANGER Under a mountain goat's hoof is a flexible, rough-textured pad that helps the animal cling to near-vertical cliffs. Yet these and other remarkable adaptations may not help some goat populations survive changes to their environment.

So why are some populations now declining?

BY CHRISSY KOETH

Snow-white and sure-footed, the mountain goat is a powerful icon of northern alpine wilderness, an animal that has adapted to some of the harshest conditions on earth. Imagine living where pointed crags rise above the clouds, temperatures fall below -40 degrees, and, during winter, the scant vegetation is buried deep beneath mountains of snow. Avalanches are commonplace. Near-hurricane winds lash the steep, granite terrain. One slip can end life in a 1,000-foot freefall. Despite these hardships, mountain goats have survived in their high-elevation habitats for thousands of years.

Yet as tough as they are, these remarkable animals are disappearing in parts of their historic range. In the mid-1970s, for example, the central Sapphire Mountain's goat population was around 75; now the number is closer to 10. Since 1994, Montana Fish, Wildlife & Parks has closed nearly 20 percent of mountain goat hunting districts due to low numbers.

Some biologists speculate that expanded snowmobile use at higher altitudes could factor in the decline. Global warming could also contribute by altering the goat's alpine habitat. But no one knows for sure what the causes might be. "We're left scratching our heads," says Mike Thompson, FWP wildlife manager for southwestern Montana.

As if the goat decline in many traditional strongholds isn't puzzling enough, other populations are going great guns. In the Crazy Mountains, for example, transplanted goats have thrived, and the area now provides more hunting permits than anywhere else in Montana.

Biologists realize they need to get a better handle on what's happening to mountain goats and why. If the animals are in trouble, the stress of increasing climate change could, figuratively, push many populations over the edge. That would be a great loss for Montana, which holds one of the healthiest goat populations in the lower 48, and for the people who thrill at seeing the animals scramble across cliff faces. Further goat declines would also reduce opportunities for highly coveted goat hunting permits. "It's going to be difficult," says Tom Lemke, FWP wildlife biologist in Livingston, "but we realize we have a responsibility, even at these low population densities, to find out what's going on."

ONE OF A KIND

The mountain goat is the only animal of its kind in the world; its closest relative is the smaller and less physically impressive chamois of Europe. Mountain goats are native to high-altitude peaks of the Northern Rockies and the Cascade Range in Alaska, Canada, Washington, Montana, and Idaho, along with small introduced populations in parts of Nevada, Colorado, Oregon, and Utah.

Chrissy Koeth is a freelance writer in California.

> "It's going to be difficult, but we realize we have a responsibility to find out what's going on."

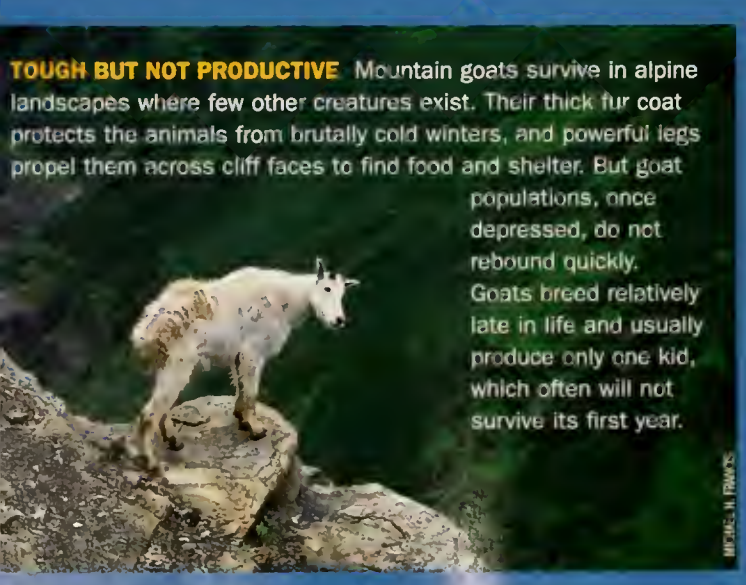
Mountain goats survive in extreme alpine environments due to a unique combination of biological equipment. Keeping out the cold is a double coat of white fur, with a fine, dense undercoat covered by a thick layer of hollow, 7-inch-long guard hairs. The animals can cling to near-vertical rock cliffs with a flexible, rough-textured pad under each hoof that grips slippery surfaces. The cloven hooves also spread wide to provide extra stability. A mountain goat's powerful shoulder muscles help it climb nearly straight up and stabilize its weight while moving downhill. Though unrelated to domestic goats, mountain goat males are called billies and the females nannies. Both sexes have a white beard of chin hairs and blackish horns that curve slightly backward. Males can weigh up to 300 pounds but average around 150; females are slightly smaller.

In Montana, mountain goats live at such high altitudes that predators are rare. Golden eagles will try to knock young goats, called kids, off cliffs. And occasionally, mountain lions venture into the rocky crags to pursue goats. Far more dangerous is the harsh environment itself. Avalanches have buried entire herds. Missteps can send goats crashing to their death. Goats unable to consume enough food to build fat reserves can perish from starvation or exposure in winter.

The same isolated, rugged environment that makes goat survival difficult also impedes biologists trying to count the animals. Goats hide in the creases and cliffs of mountains and are hard to count. The only reliable survey method—by air—is pricey, costing $500 an hour for a helicopter. "Goats are extremely expensive to survey because they live in some giant country and there's no access," says Jerry Brown, an FWP wildlife biologist in Libby who has conducted helicopter surveys of the Cabinet Mountains for 33 years. Not only is the terrain difficult to reach, but goats don't gather in large herds like deer or elk. During aerial surveys over established routes, biologists count as many goats as they can see. "If it's warm, goats go into alder fields or under trees and are about impossible to find," says Brown.

The counts don't indicate exact populations; they act as indices. By comparing numbers with previous years, biologists can spot population trends and determine if herds are increasing, decreasing, or staying level.

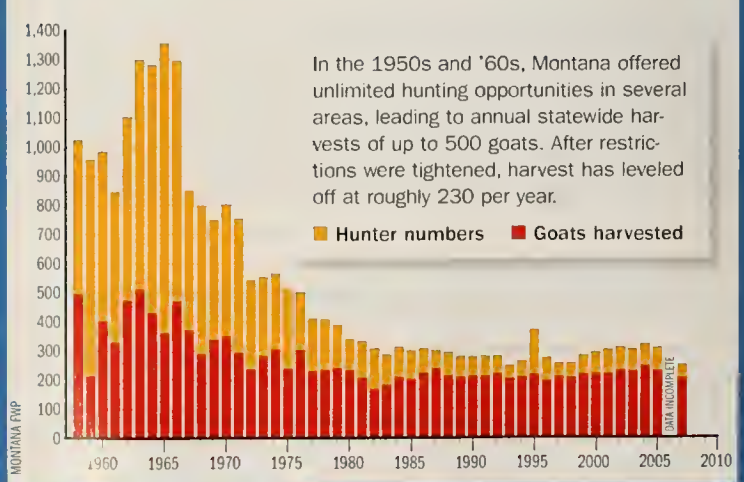
Ideally, biologists would survey small goat populations every other year and large ones annually. Yet in many areas, it may be a decade or more between surveys. Though mountain goats are popular with wildlife watchers and big game hunters, they receive far less attention from FWP compared to elk and deer. Because the state has relatively few



TOUGH BUT NOT PRODUCTIVE Mountain goats survive in alpine landscapes where few other creatures exist. Their thick fur coat protects the animals from brutally cold winters, and powerful legs propel them across cliff faces to find food and shelter. But goat populations, once depressed, do not rebound quickly. Goats breed relatively late in life and usually produce only one kid, which often will not survive its first year.

MICHAEL H. FRANCIS

Montana goat hunting and harvest, 1958–2007



goats, it can provide only a few hundred permits each year. This generates little revenue for goat management, particularly goat population surveys. That leads to uncertainty over population trends, forcing the department to close hunting seasons to be on the safe side.

Despite incomplete monitoring data, biologists believe goats are in trouble in many areas. In the Pintler Range, for example, the number of observed goats dropped from 66 in 1990 to 40 in 2006. In the Flint Range, the number went from 40 in 1990 to 25 in 2007. Goat numbers in the upper Bob Marshall Wilderness declined by 85 percent from 1982 to 2002. Since 1994, FWP has closed 10 of the state's 53 mountain goat hunting districts because of what appear to be significant population declines. "Once we close a hunting district, it's rare for it to open up again," says Thompson.

The mountain goat's low productivity makes population recovery especially challenging. Unlike elk and deer, which begin breeding as yearlings, goats don't mate until age two or three, and then usually produce only one kid per year. The alpine environment where goats live is so harsh, says Lemke, that "many kids don't even survive their first year."

HUNCHES, BUT JUST THAT

Scientists in Montana and other parts of the mountain goat's range suspect that changes in habitat are likely contributing to population declines. "Because goat winter habitat is limited," concluded a 1989 study by the U.S. Forest Service of declining populations in Alaska, "even small areas of habitat alteration that impinges on these areas can have a disproportionately large effect on the goat populations concentrated there."

> "There's nothing like talking to guys who just drew a goat license. They are so jazzed you wouldn't believe it."

One concern is the increasing number of high-powered snowmobiles venturing near mountain goat habitat. The disturbance, say biologists, could be stressing or dispersing the animals during a critical time. "Goats are right on the survival line in late winter and early spring," says Thompson. "That's also when snow is hardest and snowmobilers like to 'high-mark' [climb snow-covered mountainsides]." John Vore, FWP wildlife biologist in Hamilton, explains that at winter's end, goats have nearly depleted all their fat reserves and seek wind-blown areas where vegetation may be exposed. Vore suspects that the sound and sight of snowmobiles could drive goats into areas where food is even more scarce. "I can't say conclusively that snow machines are responsible for goat population declines, but I know that over the past 15 years, snowmobile use in the Sapphire Mountains has increased, while goat reproduction has decreased," he says.

Another possibility may be global warming. In summer, goats need succulent flowering plants to restore their strength from the previous winter and put on weight for the approaching one. Insufficient nutrition can also prevent females from bearing young. Particularly important are alpine snowfields. As they slowly melt through summer, the open areas provide moisture for St. John's wort, beargrass, Idaho fescue, and other forbs and grasses that goats eat. In recent years, Brown has seen fewer and smaller snowfields during his aerial surveys. "With the warmer weather, you also have more trees growing in alpine areas," he says, explaining that trees shade the ground and delay spring grass and forb growth.

BOOM IN THE CRAZIES

One problem with the snowmobile and global warming theories—besides the lack of solid evidence—is that, if true, the population declines should occur throughout the goat's range. Yet in some areas, goat numbers are holding steady or actually increasing. Two of the largest populations west of the Continental Divide, in the Cabinets and Bitterroots, are at or above their long-term average. Numbers are also climbing in parts of Montana east of the divide, where FWP

GOATS ON THE GO Since the early 1940s, wildlife biologists have trapped and transplanted 443 mountain goats to 27 different sites. Originally, goats were moved by horseback from trap sites to a two-wheeled horse-drawn cart. Today, the animals are transported by helicopter. Below right: mountain goats transplanted from the Crazies in 2002 to the Scapegoat Wilderness north of Lincoln.

has established new populations with trap-and-transplant projects that began in the mid-20th century.

Because goats rarely cross valleys or other low areas—likely because it makes them vulnerable to predators—they historically didn't migrate to isolated mountain "islands," such as the Beartooths, Absarokas, Crazies, and Tobacco Roots. Though these areas contain the high alpine peaks that make ideal mountain goat habitat, no historical trace of the animals has been found. Starting in 1941, wildlife biologists began capturing goats in the Bitterroots and the Sun River area and carting them to new locations with suitable habitat. In the Crazy Mountains, 21 goats released in the 1940s have increased to an observable population of 297 goats in 2007. The area now provides the most mountain goat hunting opportunities in Montana. Goats transplanted into the Absaroka Range in the 1950s have also increased and now number 250 to 300. Some have migrated into Yellowstone National Park, starting a new population that has grown to roughly 150.

Lemke explains that the new environments provide large areas of high-quality habitat. "You have the great combination of forage, elevation, and escape cover," he says. "Goats immediately took advantage of the untapped habitat and exploded." So healthy are goats in the Crazies and Absarokas, he says, some nannies are having twins.

Not all transplants have thrived, especially those in smaller mountain parcels such as the Gates of the Mountains Wilderness and the Elkhorn Mountains. Whether in native or transplanted populations, goats appear to fare worse in small, isolated areas where they have fewer places to relocate if habitat conditions worsen. "The Sapphires, for instance, are a more marginal habitat," says Vore. "If there's going to be a habitat impact or change, we would expect it to occur first in areas like that, but we don't know for certain."

The mountain goat is Montana's least studied and understood big game animal. But new information is forthcoming. A three-year National Park Service research project that began this summer is mapping mountain goat distribution and estimating goat density and abundance in Glacier National Park. Dr. Don White, a University of Arkansas professor leading the study, is using both ground and aerial teams to search the mountainous park for goats. FWP biologists say the study will help them better understand the animal's behavior and could provide a model that statistically accounts for goats not seen during surveys.

SHELLA A. JOHNSON

GOAT SURVEY A new study at Glacier National Park will determine goat numbers and distribution. The information could help biologists manage goat populations there and elsewhere in Montana.

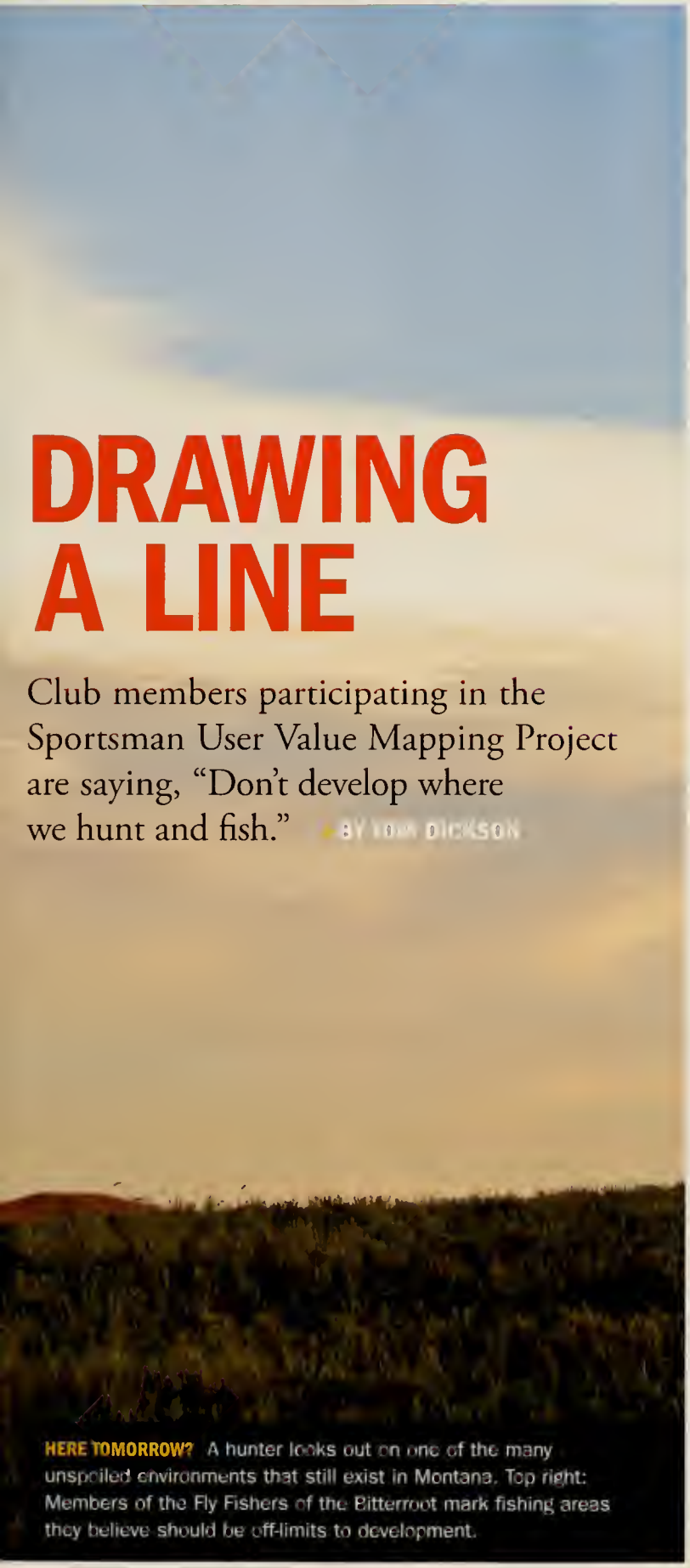
For Lemke, the results can't come soon enough. New information might help biologists prevent goat population declines and assist in recovery. Until then, he hopes to continue transplanting goats from the Crazies to new habitats elsewhere in Montana.

Lemke says he has met too many enthusiastic goat hunters to ever give up on goats. "There's nothing like talking to guys who just drew a goat license," he says. "They are so jazzed you wouldn't believe it. They all know how unique a goat hunt is and how challenging it is to hunt up above 9,000 feet. It's a once-in-a-lifetime hunting opportunity, and I'd sure like to see us provide more of them."

BILLBUCKLEYPHOTOGRAPHY.COM

DRAWING A LINE

Club members participating in the Sportsman User Value Mapping Project are saying, "Don't develop where we hunt and fish." BY TOM DICKSON



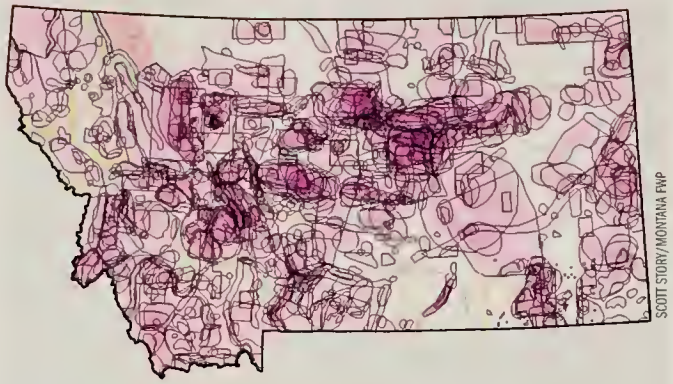
HERE TOMORROW? A hunter looks out on one of the many unspoiled environments that still exist in Montana. Top right: Members of the Fly Fishers of the Bitterroot mark fishing areas they believe should be off-limits to development.

BILL GEER/TRCP

Bill Geer had just begun his introduction at a meeting with the Bear Paw Bowmen, a sportsmen's club in Havre, when an audience member interrupted. Geer was explaining why he travels across Montana to ask local sportsmen's clubs to take part in a project that could help protect critical hunting and fishing lands. "I never know how these groups will react, but I was only two minutes in when one club member yelled out, 'Hey, I like this guy already. Let's buy him a beer.'" Though he has met with 40 different groups in 30 cities over the past two winters, Geer is still surprised by the positive response. "I always wonder about asking hunters and anglers to mark down their bread-and-butter hunting and fishing spots on a map," he says.

Montana is the pilot state for the Sportsman User Value Mapping Project, a new endeavor of the Theodore Roosevelt Conservation Partnership (TRCP). The coalition of national conservation groups and other partners works to conserve fish and wildlife habitat while protecting and improving public access for hunting and fishing. At meetings with Montana sportsmen's clubs, Geer lays out large-format maps of the state and asks members to mark what they consider their most important hunting and fishing areas. "All my career, the focus has been on identifying critical wildlife habitat," says Geer, previously director of the Utah Division of Wildlife Resources and now the TRCP policy initiatives manager. "We now have much of that information, and it's crucial. But what we don't have, and what I think is equally important, is data on critical hunting and fishing areas. That's what this project is about."

Geer says the TRCP will give this baseline information, along with wildlife habitat maps, to the Bureau of Land Management and other federal and state agencies and developers. The goal is to help land managers balance development with the needs of fish, wildlife, and sportsmen. Of particular concern is growing oil and gas development and expanding housing subdivisions in Montana and other western states. "Hunters and anglers are saying, 'Go ahead and develop, sure, just don't drill in the mule deer spot I've been hunting since I was a boy. Don't stick a new housing development on the trout stream where I plan to take my grandkids when they get old enough to fish,'" Geer says. "People are realizing that they can't hunt and fish in industrialized or commercialized landscapes."



SCOTT STORY/MONTANA FWP

PURPLE PLACES A state map shows areas marked by 40 Montana sportsmen's clubs. The darkest areas were cited most often as critical for hunting or fishing. Though lacking scientific precision, the mapping survey indicates parts of Montana that hunters and anglers value most and want to see protected from energy, housing, and other development.

FWP, which supports the project, has been entering the penciled map markings into its extensive map database. "We're seeing all kinds of things when we overlay the access maps with our biological data maps," says T. O. Smith, who works on development issues for FWP. "For example, you'd think most hunting is occurring in the best habitat, where the most animals are, but sometimes that's not the case. Instead, it's where the most access is. That can help us figure out where to direct our limited access dollars through Block Management and other programs."

TRCP

Bill Geer

"Will this project preclude economic development? No, but it will balance it. Hunters and anglers work for a living. They understand the need for development. But they won't support development that harms their outdoor recreation."

SHOULD HAVE DONE IT YEARS AGO

Hayes Goosey, president of the Park County Rod and Gun Club in Livingston, says older club members in particular were eager to participate. "They've witnessed the loss of hunting access over the past 50 years and see this as something we should have done years ago," he says. Don Clark, president of the Libby Rod and Gun Club, says he and several other members, along with the local archery club, welcomed the chance to apply their local knowledge. "There is some real potential if these maps can be used to convince large landowners not to subdivide or develop in areas recognized by hunters and anglers as important," he says.

The mapping project, which is expanding to other Western states, is funded by small grants from Cinnabar Foundation and Patagonia. In Montana, the funding pays for Geer's rental car, gas, pizza for the evening meetings, and pencils. "I give my introduction and then just sit back and watch them go to work," says Geer, who lives in Lolo.

The groups have identified more than 76 million acres (82 percent of Montana) they use for hunting and fishing. "They don't just circle a county and say 'off limits,'" Geer says. "They really think it through and sometimes erase lines they've put down, saying, 'No, that's an important area, but it's not critical.'"

Aren't participants wary of revealing their secret spots? Tim Aldrich, head of the Hellgate Hunters and Anglers in Missoula, says his members realized the importance of putting information on a map. "I don't give up the locations of my areas easily," he says, "but how else are we going to protect them? It's a risk we're willing to take."

Geer has been surprised that most groups circle areas throughout the state, not just in their locality. "People travel all over to hunt and fish," he says. "You've got hunters from Kalispell driving to Culbertson for pheasants and anglers from Lewistown going to the Beaverhead to fish trout." The most frequently identified critical hunting area, Geer says, has been the Missouri Breaks.

SALT-OF-THE-EARTH TYPES

Not all club members like the mapping idea. The Custer Rod and Gun Club in Miles City was reluctant to indicate more than just a few obvious spots. "But then a few months later they had a better idea what the project was about, and they invited me back and really went to town on the maps," Geer says. In White Sulphur Springs, after Geer gave his introduction, a member whose son worked as a petroleum engineer spoke for half an hour on how reports of natural gas development harming wildlife habitat were untrue. After finishing, the man left the building. "I figured they'd send me home after that," Geer says. "But then everyone else got down to mapping."

Geer has met a broad cross-section of Montanans concerned about threats to their outdoor recreation. "One club had several elderly women, some I think in their 70s and even 80s, who hunted with their husbands. I've had young ranchers,

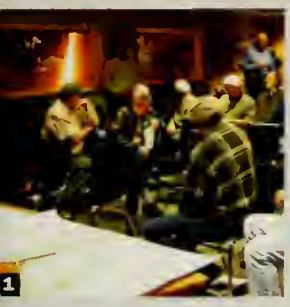
Tom Dickson is editor of Montana Outdoors.

mechanics, and all kinds of salt-of-the-earth people. These are honest-to-goodness users of Montana's resources."

The project has allowed Geer to do the type of grassroots community building he believes is essential for the future of fish and wildlife conservation. "All my career I've wanted to galvanize hunters and anglers," he says. "This project gives them a voice. It's a way of capturing their passion and putting it in persuasive terms that political leaders will understand.

"People really like having someone show them the respect of coming out to where they live and asking them what they think," Geer adds. "They are out on the land all the time. They know what they've got, and they realize this may be their best chance to make sure they don't lose it."

For more information on the Sportsman User Value Mapping Project, contact Bill Geer at (406) 396-0909; bgeer@trcp.org. Learn more about the TRCP at trcp.org.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THE POWER OF THE PENCIL **Participants in the mapping project make their mark to protect vital hunting and fishing lands and waters across Montana.**

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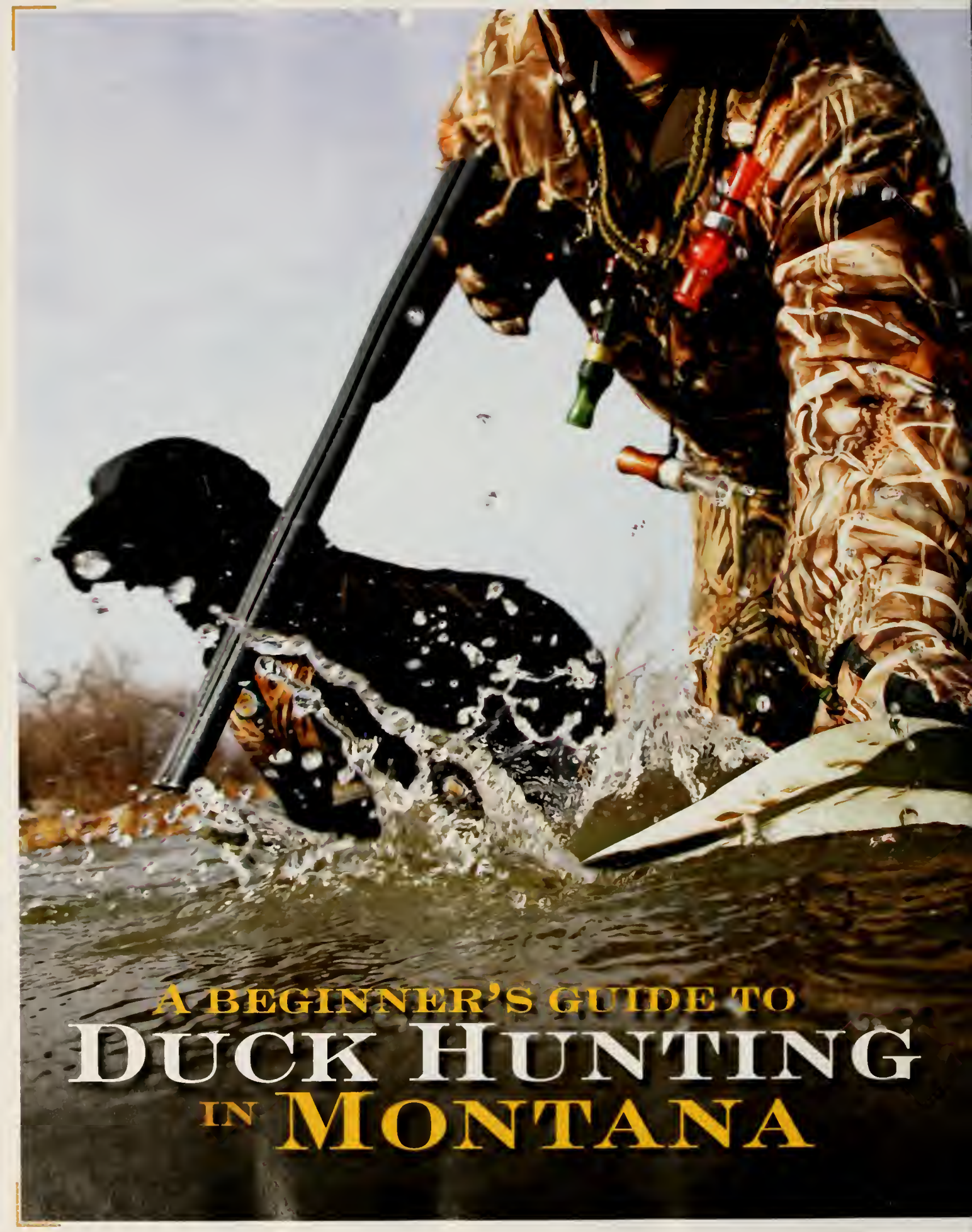
1. Flathead Wildlife, Inc., **2.** Dillon Area Sportsmen, **3.** Park County Rod and Gun Club, **4.** Ravalli County Fish and Wildlife Association, **5.** Prickly Pear Sportsman's Association, **6.** Custer Rod and Gun Club, **7.** Big Sky Upland Bird Association, **8.** Lewistown Archers, **9.** Ashland/Broadus Sportsmen, **10.** Region 4 Sportsmen's Association, **11.** Tobacco Valley Rod and Gun Club, **12.** Libby Rod and Gun Club, **13.** Rosebud/Treasure Wildlife Association.

12

13

PARTICIPATING CLUBS

- Anaconda Sportsman's Club
- Ashland/Broadus Sportsmen
- Bear Paw Bowmen
- Big Sky Upland Bird Association
- Billings Rod & Gun Club
- Bullhook Bottoms Blackpowder Club
- Custer Rod & Gun Club
- Dawson County Rod & Gun Club
- Dillon Area Sportsmen
- Federation of Fly Fishers
- Flathead Wildlife, Inc.
- Fly Fishers of the Bitterroot
- Forsyth Rifle & Pistol Club
- Gallatin Wildlife Association
- Great Falls Archers
- Great Falls Chapter, Safari Club International
- Headwaters Fly Fishers
- Helena Hunters & Anglers Assn.
- Hellgate Hunters & Anglers
- Jefferson Valley Sportsmen's Assn.
- Laurel Rod & Gun Club
- Lewistown Archers
- Lewistown Sportsmen
- Libby Archery Club
- Libby Rod & Gun Club
- Magic City Fly Fishers
- Malta Area Sportsmen
- Meagher County Sportsmen
- Park County Rod & Gun Club
- Polson Outdoors
- Prickly Pear Sportsman's Assn.
- Pronghorn Archery Club
- Public Land/Water Access Assn.
- Ravalli Co. Fish & Wildlife Assn.
- Region 4 Sportsmen's Assn.
- Rosebud/Treasure Wildlife Assn.
- Russell Country Sportsmen
- Skyline Sportsmen's Association
- Tobacco Valley Rod & Gun Club
- Valley Sportsmen's Association



A BEGINNER'S GUIDE TO

DUCK HUNTING IN MONTANA

Basic advice on one of the state's least crowded hunting opportunities

By Dave Carty

Montana is famous as a big game state. But there are ducks here everywhere you look, from teal nesting in the Bitterroot Valley to migrating pintails at Freezout Lake to late-season mallards winging across the eastern prairies.

You wouldn't know that from most Montana hunting books and articles. The focus is almost exclusively on elk, pronghorn, deer, and other big game—with the occasional mention of upland birds. But waterfowling has its own allure. At the risk of bringing even more participants into one of the least crowded hunting opportunities in Montana, I'm prepared to tell you why it's so appealing and how to get started.

There are three basic ways to hunt ducks. The first and simplest is jump shooting. Find a creek or canal, get permission from the landowner, walk along the banks until you flush a duck, then shoot the bird as it rises off the water. (Though legal, shooting a bird on the water is considered unethical.) Or sneak up on a pond or stock dam until you get close enough to jump a duck.

This type of waterfowling is not particularly challenging (though it's amazing how often a hunter can miss a big mallard rising straight up into the air—the trick is to shoot above the bird). But if all you want is a duck din-

ner for Christmas, jump shooting requires little in the way of time and equipment. You don't even need camouflage clothing.

The second technique is pass shooting. Hide where ducks fly by and then waylay the birds, usually at dawn and dusk as they move between feeding and resting areas. Pass shooting is a bit more like the classic duck hunting you read about in old waterfowling journals. It requires some knowledge of duck movement and the ability to lead a fast-flying bird with your shot. Besides a shotgun, the only gear required is a camo coat and hat to hide you from ducks as they fly overhead.

The third way to hunt ducks is with decoys. This is the classic method you see on TV outdoors shows or read about in the sporting press. Decoys trick the birds into coming close to your blind. Like bugling an elk or calling a wild turkey, fooling a flock of mallards so they set their wings and drop into your spread is one of the most thrilling aspects of hunting.

Hunting with decoys can also be the most difficult, complicated, and expensive way to put waterfowl in the bag. Though not always. I spent years hunting ducks with little more than a shotgun, six to twelve decoys, a cheap duck call, chest waders, and a dog. Call it the starter package. You can purchase much more stuff than that, but you really don't need to. Wait until you're hooked on waterfowl hunting before mortgaging your house to buy a duck boat, trailer, four dozen decoys, handmade calls, and the multitude of other paraphernalia filling hunting catalogs.

The trick isn't to use bigger shells or larger shot…but rather to practice shooting and estimating range.

For a shotgun, almost all waterfowlers use a 12-gauge. A very good wingshot could get by with a 16- or 20-gauge. And I know of at least one fellow who hunts over decoys with a 28. But ducks are big, resilient birds, and all but the very best shooters will be most successful using a 12-gauge.

What's more, steel and other nontoxic loads required for hunting ducks in national wildlife refuges—often Montana's best waterfowling spots—are most readily available in 12-gauge. It would be heartbreaking to drive all the way to Malta and be unable to find steel shot for your smaller gun.

Jeff Herbert, assistant chief for the FWP Wildlife Division, has been hunting ducks in Montana and elsewhere for decades. He switched to using steel exclusively for both waterfowl and upland birds years ago. He and I have hunted together on several occasions, and we agree that the key to killing ducks is knowing how to place your shots. With ducks, you need to lead the bird—usually by several feet or more. "Side shots and angled shots on birds overhead require some kind of sustained lead that you determine before pulling the trigger," Herbert says.

The trick to putting ducks in the bag isn't to use bigger shells or larger shot—for the record, Herbert uses size 3—but rather to practice shooting and estimating range. "Look at life-sized silhouettes or live birds with a range finder and see what they look like within your effective shooting range," Herbert says.

As for decoys, a person can spend anywhere from $25 for a dozen plastic models made in Korea to several hundred dollars for just one hand-crafted model. High-

Dave Carty, Bozeman, is a longtime contributor to Montana Outdoors.

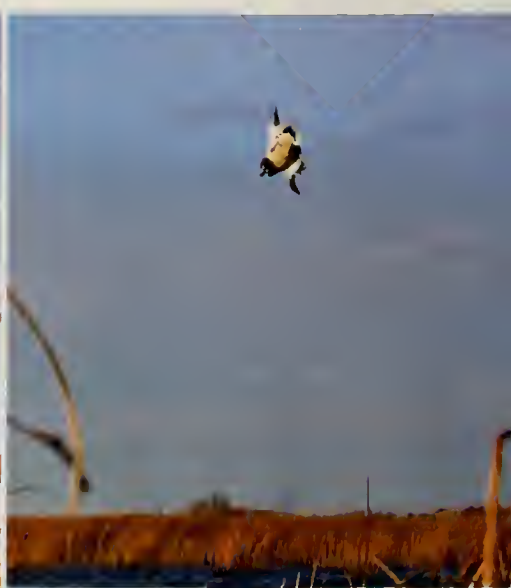


PHOTO SEQUENCE BY BILLBUCKLEYPHOTOGRAPHY.COM

INCOMING Ducks that fly straight in to your blind require no lead. Cover the bird with the end of the barrel and then fire as it comes into range. Right: Duck hunters move only their eyes while an overhead flock tries to decide whether to land.

MICHAEL PERRIMAN

JIM R. HARRIS

ON THE WATERFRONT Among the many appeals of duck hunting (clockwise from left): observing the grace and beauty of waterfowl in flight; setting a decoy spread that looks like a real flock of resting birds; watching your hunting buddy keep vigilance on the sky; finally luring a drake into shooting range.

quality decoys will certainly help attract birds, but I've done fine with the bargain models found in most sporting goods stores. As for number, more is not necessarily better. Waterfowlers who hunt scaup, canvasbacks, and redheads on big, open water will often use up to 100 decoys. But a dozen is usually adequate when hunting on marshes, ponds, and spring creeks for "puddle" ducks such as mallards, wigeon, and teal.

A duck call is another item that can cost the good part of a paycheck. Some hand-carved models run several hundred dollars each. But over the years, I've shot scores of ducks over decoys using a cheap Lohman single reed I bought long ago in a hardware store. Another favorite duck call was given to me by a buddy who spends hours practicing his calls and travels across the country to hunt waterfowl. It's a Haydel's clear plastic double-reed that still sells for under $15.

Waders are essential for most duck hunting. Regular fishing waders are fine as long as they are chest high. There's nothing worse than shipping a gallon of ice-cold river water into hip boots on a brisk December morning, then sitting in a blind while your toes go numb. Cold-weather hunters might consider buying a pair of thick neoprene boot-foot waders.

Even though I've been duck hunting in Montana for more than two decades, I'm still always out scouting for new spots.

Montana is filled with waterfowling spots. Thanks to the state's stream access law, virtually all of the Yellowstone, Missouri, and other large rivers are open to waterfowl hunting along the bank up to the high-water mark. That's a lot of water and a lot of potential hunting. (Note that the law does not give access to surrounding private land, even if a duck you shoot falls there. To retrieve a bird on private land, or to access a river across private land, you need the landowner's permission.)

Many reservoirs and waterfowl refuges provide decent hunting, though they draw crowds on opening weekend. Freezout Lake, Canyon Ferry Reservoir, and Bowdoin, Medicine Lake, and Benton Lake national wildlife refuges are among the better known. Dozens of smaller reservoirs and lakes and countless streams and wetlands also provide excellent shooting. Scouting is critical. Talk to friends, study maps, and drive around to locate promising places on your own.

Finding spots that crowds ignore is worth the extra legwork. I spent years hunting a channel I discovered on the Missouri River and had some of the best shooting of my life there. With the surge of new residents, the spot is no longer the secret it used to be. But plenty of others are still out there. Even though I've been duck hunting in Montana for more than two decades, I'm still always out scouting for new spots.

Once you find a place to hunt, the next step is to decide where to set your decoy spread. That means figuring out where flying ducks will want to land. Nothing attracts ducks better than decoys placed in a spot the birds have been using and want to revisit. That requires scouting the water beforehand to see where ducks land, feed, and loaf. Effective decoy placement can make even a mediocre caller like me look good.

Set decoys in the water several yards out and to the side of your shoreline blind. That way, ducks will land directly in front of you. Keep in mind that ducks land into the wind and will usually come in a bit short of your decoys.

Learning to call ducks isn't difficult, though mastering it takes years. Buy a few of the many instructional CDs and DVDs available. They are produced by people who quack at more ducks in a month than I'll see in my lifetime. Don't get caught up in the endless nuances of calling, at least not at first. Although you may eventually learn two dozen or more different calling sequences, a beginner needs to know only the basic hail call and the single quack.

Knowing when to call is more important than learning many calls. Hit distant birds with a loud hail call until they turn. Crank down the volume while they're swinging overhead, and then coax them in with single quacks or soft hail calls whenever they swing away. When the ducks turn again and appear to be coming in, stop calling and pick up your shotgun.

Using a duck call is not essential. In fact, you can often lure more ducks by just being quiet, as long as you've put your decoys in a place the birds want to be. This is especially true on heavily hunted public marshes, where every hunter and his brother are tooting away.

As for dogs, you don't always need one for duck hunting. Young and nimble waterfowlers who hunt over small bodies of water can usually retrieve their own ducks. But on big lakes and rivers, dogs are essential. Also, dogs add immeasurably to the quality of any duck hunt. I've come to appreciate that even more since my springer spaniel died 20 years ago and most of my duck hunting since has been without canine companionship. Getting a dog is a large commitment in time and money, but a good Lab, springer, or "versatile" retriever (such as a griffon or German wirehair) will find birds you thought you'd lost—and a few you never knew you hit. You'll have far more fun even on slow days and will forever bore friends with tales of your dog's heroics afield. Better still, your canine buddy will never criticize your shooting or tire of your lame excuses for missing. Try that with your other hunting pals.

CALL OF THE WILD DUCK Knowing when and how to use a duck call can lure reluctant birds into shooting range. But calls aren't essential, and poor calling—which ducks quickly detect as fake—is usually worse than no calling at all. Montana duck hunters see a wide range of species, including mallards, pintails, redheads, canvasbacks, shovelers, and gadwalls (above right), also known as gray ducks. A Labrador or other good retrieving breed (below) is not essential for duck hunting. But a dog can make the hunt easier, reduce the loss of crippled birds, and provide good company in the blind when birds aren't flying.

CHUCK HANEY

Quaking Aspen

Populus tremuloides

By Tom Dickson

While driving west from Helena to hunt ducks in the Blackfoot Valley, I stared at the surrounding mountains. A newcomer to the state, I'd been disappointed at the lack of fall color. Montana was certainly grand, but the coniferous forests seemed monotonously green. I missed the brilliant palate of elms, maples, oaks, and other hardwoods common that time of year in the Midwest and Northeast.

Topping MacDonald Pass, I nearly swerved off the road at the sight ahead. Running up ravines of the green mountainside were three brilliant swaths of bright gold. As I slowed down to take in the view, the leaves shimmering in the breeze made the orange-yellow groves appear to vibrate.

That was my first experience with quaking aspens in fall. Since then, the changing colors of this remarkable tree are just one more reason I spend so much of the summer looking impatiently toward October.

IDENTIFICATION

Quaking aspen can be easily recognized by their smooth, white bark, marked by dark scars where branches naturally self-prune. Adult aspen reach 40 to 70 feet high but occasionally grow much taller. The largest in the United States, a giant of 144 feet, is in the Kootenai National Forest near Troy.

WILDLIFE VALUE

Steve Cooper, vegetation ecologist with the Montana Natural Heritage Program, says aspen stands are important grizzly habitat. "The groves hold lots of forbs that bears eat in spring and fall," he says. Deer, elk, moose, snowshoe hares, porcupines, beavers, and other wildlife eat aspen leaves, twigs, and bark, especially in winter. Birds love quaking aspen groves and the rich understory of shrubs, grasses, and wildflowers. When walking through a grove, look at the bark for rows of small black holes made by red-naped sapsuckers searching for insects. Other bird species using aspen are mountain bluebirds, house wrens, warbling vireos, hermit thrushes, and ruffed grouse.

Tom Dickson is editor of Montana Outdoors.

HABITAT AND RANGE

Within ponderosa pine, Douglas-fir, and lodgepole pine forests, aspen grow in dense groves ranging from 1 to 20 acres. Aspen need more moisture than conifers do, so they grow best along streams and in sheltered areas such as swales.

The quaking aspen is the most widely distributed tree species in North America. It ranges from Alaska to Appalachia and along the Rocky Mountains as far south as New Mexico. In Montana, quaking aspen are found throughout the western and central parts of the state at elevations between 5,000 and 10,000 feet.

LEAVES

The heart-shaped leaves have finely saw-toothed edges. They are attached to branches by a stem that is flat rather than round, which causes the leaves to tremble (or quake) in the slightest breeze. Dark green above and light below, the leaves seem to shimmer as they flutter in the wind. Botanists believe that quaking aspen leaves twist and turn to dissipate the force of strong winds that could snap the tree trunk. Quaking aspen are also known as quakies and trembling aspen.

ROOTS

Aspen propagate through their root systems, a process rare among trees. Each lateral root contains thousands of budding sites. Live aspen produce a plant hormone called auxin that keeps the buds in a state of dormancy. When trees above ground are injured or killed by fire, logging, or other disturbances, the buds are stimulated into sprouting. All trees in an aspen grove come from the same root system and are technically a single organism. The root systems, called "clones," can be ancient. The oldest, located in central Utah, is thought to be 80,000 years old. Estimated at 13.2 million pounds, the 106-acre grove is also considered the heaviest and largest organism in the world.

STATUS

Aspen thrive in disturbed landscapes, especially those that burn. Recent wildfires in Montana have benefitted aspen regeneration. When the U.S. Forest Service measured aspen acreage in New Mexico and Arizona between 1962 and 1984, it found the amount had declined by 40 percent, due mainly to fire suppression. Though logging can regenerate aspen, and the market for aspen as a source of pulpwood is growing, most western groves are either inaccessible or too small to make harvest worthwhile.

CLOSING IN

A bowhunter pauses while stalking a feeding bull elk. The opportunity for such close encounters is just one reason for the sport's growing popularity in Montana. See story on page 16. Photo by Dušan Smetana.

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